

Yb. Heather Soc. 1995: 33-40.

***Erica mackaiana* forma *multiplicata*: a new name for the "multipetalled" form of Mackay's heath, with a history of Crawford's heath.**

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"MULTIPETALLED" MACKAY'S HEATH

The Connemara (County Galway) and Mayo populations of Mackay's heath (*Erica mackaiana* Bab.) contain numerous plants that display varying degree of malformation of the flowers, including "doubling" (Nelson 1989: 272) – "doubling" is an inexact and very misleading term, for in reality the floral parts concerned are sometimes more numerous than twice the original number, and often they are so abundant as to be literally almost countless. In the familiar "double" cultivar of *E. mackaiana*, originally called Crawford's heath, some individual flowers have such an over-stuffed corolla that it bursts to form a rose-like blossom.

My observations of plants in the Irish populations of *E. mackaiana* during the past two decades indicate that Crawford's heath is an extreme example of a strange phenomenon in which the stamens, style and stigmas of *E. mackaiana* can be malformed. When the phenomenon occurs, all the flowers produced by an individual plant are affected and the nature and degree of the malformation is, in general terms, consistent within that plant. Moreover, judging by the several "double-flowered" cultivars, the malformation is perpetual; the progeny of such plants, when produced by vegetative propagation, retain the malformed floral parts. Thus the malformation probably has an internal, genetic origin, and is not caused by ephemeral, external agents such as chemicals or insects.

The most prevalent malformation involves degenerate stamens which could be called staminodes. In plants displaying the malformation, the anthers are always moribund, distorted and empty of pollen, or in many cases entirely absent. The filaments of the

stamens are also different from those in normal, fertile plants; in some of the plants with distorted anthers the eight filaments may merely be broadened, while in others the filaments will be more numerous and petal-like with no trace of anthers. As noted, in the most extreme examples such as the plants collected by F. C. Crawford in 1901, or by A. G. More in 1869 (Praeger 1938), there is an astonishing proliferation of the irregularly shaped, flattened, petaloid filaments (sometime termed "petals") without anthers. The broadened filaments may be fused for their entire length into a cylinder, thereby forming one or more secondary corolla-like structures inside the true corolla.

Usually, plants displaying these characteristics are not conspicuous in the field, but when random collections are made and the individual flowers are examined with a hand-lens, the petaloid, anther-less filaments can sometimes be seen protruding at the mouth of the urn-shaped corolla. When flowers are dissected under a microscope, the broadened, petaloid filaments are immediately obvious, and in this way these variants are found to be relatively frequent.

As *E. mackaiana* plants possessing this range of characters are not infrequent, I propose that they should be segregated into a botanical form named *E. mackaiana* f. *multiplicata* (see Appendix), distinguished from the type by the moribund or absent anthers and the flattened petaloid filaments, whether equal in number to the stamens of intact, fertile flowers (i.e. 8), or, as in Crawford's heath, more numerous. Included within this botanical form are the cultivars 'Flore Pleno' (which is the earliest (1905) available name for Crawford's heath, but one long since abandoned in favour of the later 'Plena') and 'Maura', both wild collected, and 'Ann D. Frearson'.

Erica mackaiana f. *multiplicata* is recorded from Connemara, from the populations at Craiggamore near Roundstone, and at Carna, and from the recently discovered population near Bellacorrick in west County Mayo. The form has not been detected in County Donegal (Lough Nacung) nor in Spain. This form was among the specimens collected at Craiggamore by William McCalla when the species was first brought to attention in the mid-1830s.

Erica Mackayii, Hook., was growing in abundance and in great beauty, and Mr. Crawford was fortunate enough to find in some quantity the particularly fine very double variety of it... .

January 1902: *Trans. & proc. of the Botanical Society of Edinburgh* **22**: 163.

Erica Mackayii, Hook., and double variety - Connemara.

ibid.: 164.

Professor Balfour gave an exhibition of forms of *Erica Tetralix* from Connemara, namely, true *Tetralix*, *E. Mackayi*, and *E. Stuarti*, and referred to the new find of *E. Crawfordi*

November 1902: *The Irish naturalist* **11**: 287
repeated word for word elsewhere as follows -

... an exhibition of forms of *Erica Tetralix* from Connemara ... and referred to the new find of *E. Crawfordi*

December 1902: *Journal of botany* **40**: 428-429.

A highly interesting description of Crawford's Heath (*Erica Tetralix* fl.-pl.) was given The existence of this double variety of *E. tetralix* is not yet widely known

25 March 1905: *The garden* **67**: x.

The President contributed a note on *Erica Tetralix*, L., subsp. *Mackayi*, Hook., *flore pleno*, Crawford's Heath.

April 1905: *Trans. & proc. of the Botanical Society of Edinburgh* **23**: 91.

E. Mackayii ... A double-flowered form found at Craigga More by Mr. F. C. Crawford of Edinburgh in 1891 [sic], has been called by nurserymen *E. Crawfordii*.

1909: R. Ll. Praeger, *A tourist's flora of the west of Ireland* 163
repeated elsewhere, almost word for word, as follows -

A double-flowered form, found in Galway by the late F. C. Crawford, has been named by nurserymen *E. Crawfordii*, but the description has not been published, and the name may be allowed to drop... .

5 November 1910: *The gardeners' chronicle* **48**: 333.

"*ERICA CRAWFORDII*" – DISCOVERY AND INTRODUCTION

On 5 August 1901, Dr Frank C. Crawford (1851–1908: see e.g. Marshall 1910), with two fellow members of the Scottish Alpine Botanical Society, visited Connemara and 'was fortunate enough to find in some quantity the particularly fine very double variety' of *E. mackaiana* (Paul 1902). Several authors (e.g. Ball, 1911, 1914; Scannell & McClintock 1973; McClintock 1973) dated the original collection as 1891, an error that seems to have arisen from the coincidence of two separate visits, a decade apart, by the Scottish Alpine Botanical Society to the same part of Ireland (the earlier visit resulted in the discovery of *E. x stuartii* (Macfarl.) Mast. which Crawford went to re-find (Paul 1902; Nelson 1995)).

Crawford's heather was remarkable because of the double flowers, the stamens transformed into countless, sterile, petaloid filaments which pack tightly into the barrel-shaped corolla (Uphof 1939; Webb 1956). Within days of returning home from Ireland, Crawford sent specimens of his heather, correctly identified as a form of *E. mackaiana*, to the editor of *The Garden*, and a note appeared on 24 August 1901:

Mr. F. C. Crawford sends from Edinburgh a most interesting and uncommon example of a double heath occurring in a wild state with these words: "Herewith I send you a twig of a charming heath which I found in Connemara the other day. You will note that it is a double-flowered form of *Erica Mackayii* [sic]. I do not know if this form has been found before now

Crawford (1901) asserted that he gave plants of this new heath to the Royal Botanic Garden, Edinburgh, and thus it was quickly established in cultivation and was exhibited at meetings of the Botanical Society of Edinburgh during December 1901, and again in January 1902. Within a year the heather had been dubbed *Erica crawfordii* by horticulturists, and was among the subjects discussed and exhibited by botanists at the British Association for the Advancement of Science meeting in Belfast during September 1902.

By November 1905, the Royal Botanic Garden, Edinburgh, was ready to distribute plants of this heather – two were donated to the Royal Botanic Gardens, Glasnevin, and were recorded in the Glasnevin accessions register as '*Erica ciliaris* [sic] *crawfordii*' – this is the only occasion I have found where it was misnamed as a variant of *E. ciliaris*, Dorset heath.

THE PUBLICATION OF *ERICA CRAWFORDII*

The binomial *Erica crawfordii* has long been consigned to the proverbial rubbish-bin, yet it is a name that has been published. Is *Erica crawfordii* a valid binomial? Can a place of publication with an accompanying diagnosis or description be traced?

Standard sources (e.g. Prain 1921, McClintock 1973) state that it was published by G. C. Druce in his *List of British plants...* issued in Oxford in January 1908. Druce's book is correctly denominated a list as no description accompanied the epithet, which was printed incorrectly as "Craufordii" and therefore no matter what other conclusions may be achieved, Druce was not the author, and did not effectively publish this binomial. In a later note, Druce (1913) stated that Crawford heath was a double-flowered variant of *E. tetralix*.

The epithet "crawfordii" was employed in print as early as November 1902 in the report of the Belfast meeting of the British Association for the Advancement of Science – at the botany section, Balfour displayed specimens of 'the new find of *E. Crawfordi*' (Balfour 1902; repeated in [Britten] 1902), but there is no diagnosis accompanying this report.

Balfour seems to have been intrigued by this heather for he addressed the subject again in 1905 (Anonymous 1905):

At a recent meeting of the Edinburgh Botanical Society ... a highly interesting description of Crawford's Heath (*Erica tetralix* fl. pl.) was given by Professor Bayley Balfour. The existence of this double variety of *E. tetralix* is not yet widely known. It was found in Connemara by Mr F C Crawford a year or two ago, and, as Professor Balfour said, is a valuable plant for the garden, as well as interesting as one of the few double Heaths.

It is important to stress that, as far as I can trace, all references to this double-flowered heather published in horticultural and botanical books and periodicals *before* 1911 contain *either* a Latin name *or* a diagnostic phrase, but these two vital ingredients of an effective publication are never combined; thus none of the references constitutes valid publication (see Table 1). In the issue of *The Gardeners' Chronicle* dated 10 June 1911, C. F. Ball, Assistant Keeper of Glasnevin Botanic Gardens, published an article entitled 'The double-flowered *Erica mackaii*' which contained a full description of the plant. However Ball's account does not constitute a valid publication because the title of the article indicates that he considered *E. crawfordii* was a variant of *E. mackaiana*.

This pretty *Erica* is identical with the plant known as *E. Crawfordii*, or Crawford's Heath, from it having been found by Mr. F. C. Crawford ... Mr Crawford's plant was, until recently, supposed to be the only specimen from the wild, but Mr. Praeger informs me that a dried example of this double-flowered heath has been found among the late Mr. A. G. More's collection of *E. Mackaii*, in the herbarium of the Dublin National Museum ... The corolla is urn-shaped, undivided unlike that of the type plant, but wider at the mouth, the inside being closely packed with petals. The essential organs are absent, so that the doubling whilst not disfiguring the flowers enable them to last for a longer time. The plant ... forms a spreading tuft about 18 inches across and 6 inches high. The flowers are pink on the sides exposed to the sun, and blush or white where unexposed

Thereafter there are numerous references to the double-flowered form of Mackay's heath (e.g. Bean 1914; Praeger 1914) but considering each and every one seems a pointless exercise. The name *Erica crawfordii* was established in botanical and horticultural literature without apparently being published in accord with the rules of nomenclature now in effect.

CONCLUSION

Although *Erica crawfordii* was used as early as 1902 by gardeners and botanists, I have not yet found a publication in which it can unequivocally be said to have been published validly.

Botanical epithets at specific and infra-specific ranks have been published in nurserymen's catalogues. These names, when accompanied by a diagnosis, may be effectively published, and thus they cannot be ignored. In the case of *Erica crawfordii*, the clear statements that the heath was named by nurserymen before 1902 suggest that the binomial may be found in catalogues. If contemporary catalogues containing the heather can be traced – none was found by the present author – the nomenclatural arrangements and the conclusions of this paper may yet be proved inaccurate.

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APPENDIX

Erica mackaiana Babington forma *multiplicata* E. C. Nelson **forma nov.**

Forma multiplicata a forma typica staminodiis petaloideis octo vel innumerabilibus additis, antheris deficientibus, vel octo staminibus deformibus filamentis conspicue latis factis antherisque sterilibus, statim diagnoscenda.

Erica mackaiana f. *multiplicata* is immediately recognizable from the typical form by 8, or innumerable additional, petaloid staminodes without anthers, or by 8 deformed stamens with conspicuously broadened filaments and deformed sterile anthers.

Holotypus: **IRELAND, W. County Galway:** south of Derryehorraun River, east of Clifden, E. C. Nelson, 15 August 1980. **DBN.**

Synonyms:

- E. crawfordii* hort.: *The Irish naturalist* 11 (November 1902): 287. *nom. nud.*; *Journal of botany* 40 (December 1902): 428-429; R. Ll. Praeger, *A tourist's flora of the west of Ireland* (1909): 163; *The gardeners' chronicle* 48 (ser. 3) [5 November 1910]: 333; C. F. Ball in *The gardeners' chronicle* 49 (ser. 3) (10 June 1911): 372.
- E. tetralix flore-pleno* I. B. Balfour, *The garden* 67 (1905): x. *nom. illeg.*
- E. tetralix* subsp. *mackayi flore-pleno* I. B. Balfour, *Transactions and proceedings of the Botanical Society of Edinburgh* 23 (April 1905): 91. *nom. illeg.*
- E. tetralix* var. *crawfordii* G. C. Druce, *List of British plants...* (1908): 47. *nom. nud.*
- E. tetralix* forma *flore pleno* G. C. Druce, *Report of the Botanical Exchange Club of the British Isles for 1913* (1914): 329. *nom. illeg., descr. en passant.*
- E. mackayi* var. *flore pleno* W. J. Bean, *Trees and shrubs hardy in the British Isles* (1914): vol. 1, 522. *nom. illeg.*
- E. mackayi* var. *pleniflora* Bergmans, *Vaste planten en rotsheesters* (1924): 209.
- E. mackaii* var. *plena* Rehder, *Manual of cultivated trees and shrubs* (1927): 721. *descr. angl.* (cites var. *flore pleno* Bean).

Specimens examined: **IRELAND, West County Galway.** Near Roundstone, J. T. Mackay, 25 November 1835 (**DBN**). Between Roundstone and Clifden, J. H. Balfour, 10 August 1838 (**E**). Craigga-more near Roundstone, A. G. More, August 1869 (**DBN**). hill slope near Carna, A. G. More, August 1874 (**DBN**). Roundstone, T. J. Kelly, September 1888 (**OXF**). near Roundstone, F. C. Crawford, 6 August 1901 (**E**). Craignameara, David Paul, 6 August 1901 (**E**). Craigga More, T. J. Foggitt, 28 August 1926 (**BM**). north side of the road, about 1 miles E. of Carna, M. J. P. Scannell, 29 August 1970 (**DBN**). Hill 201, *ex hort.* (originally from Craigie Moor), D. P. Bourke, 13 September 1972 (**DBN**). bog, by Lough Tawynalararoe, west of Cloonagat Lough, M. J. P. Scannell, 9 September 1973 (**DBN**). Craiggamore, M. J. P. Scannell & D. McClintock, 23 August 1974 (**DBN**). Track to Lough Nafeakle, Connemara, E. C. Nelson, August 1978 (**DBN**). Bog road near Clifden, O. M. Stewart, 8 September 1991 (**E**). **West County Mayo.** Dooleeg Mor, near Bellacorrick, E. C. Nelson & C. J. Hora, 12 September 1989 (**DBN**).